

Dried Fish-Cereal Mixture

Large quantity of deep sea shrimp bycatches find less acceptability with the consumer due to non-familiarity. Development of acceptable products from meat obtained from these species may solve the problem of non-acceptability. Therefore a convenient nutritious dried product was developed which can be used for the preparation of soups, stews and in other wet foods. The shelf-life of the product was studied.

Sciaenid (*Lutjanus* sp.) fish (about 100 g. each) were procured from the landing centre. It was then descaled eviscerated, beheaded and washed thoroughly. Washed fish was steamed for 15 min at atmospheric pressure and allowed to cool. The skin was then removed and cooked meat separated manually. The separated cooked meat was thoroughly mixed with rice flour in the ratio 1:1 (sample 1) and 1:2 (sample 2). The mixture was sun dried and dried product was powdered and packed in 200 gauge polythene bags. The bags were kept in closed

plastic container. The storage characteristics of the products were studied. Moisture, fat, total nitrogen, ash and acid insoluble ash were determined following methods of AOAC (1975), total volatile basic nitrogen (TVBN) by the micro-diffusion method of Conway (1947). Total bacterial count was determined by standard pour plate method using tryptone glucose agar medium. Plates were incubated at 37°C and counts were taken after 48 h.

The mixture was used for the preparation of soup. Boiling sample 1 with 3 volumes of water for 5 min gives a thick gravy.

Table 1. Proximate composition of products

Sample	Protein %	Moisture %	Fat %	Ash %	Carbohydrate %
1.	26.80	9.64	1.22	1.13	61.79
2.	18.20	9.72	1.22	1.03	69.91

Table 2. Storage characteristics of fish cereal mixtures

Storage period Days	*Moisture %		*TVBN mg%		*Total plate count/g		Acceptability	
	1	2	1	2	1	2	1	2
0	9.64	9.72	18.47	18.18	1.5×10^2	3.5×10^2	9	9
15	9.68	9.79	22.34	20.14	3×10^2	5×10^2	9	9
30	9.60	9.74	25.72	24.28	9×10^2	9.5×10^2	9	9
45	9.54	9.68	26.50	24.50	2.2×10^3	2.4×10^3	8.6	8.7
60	9.62	9.71	28.30	26.30	7.8×10^3	8.8×10^3	8.6	8.7
75	9.68	9.78	29.85	27.62	4.0×10^3	3.5×10^4	8.4	8.4
95	9.75	9.80	30.78	29.24	9.5×10^4	9.0×10^4	8.0	8.1
125	10.28	10.35	32.53	31.56	2.3×10^4	1.5×10^5	7.6	7.6
145	10.58	10.54	33.84	32.12	7.0×10^5	5.5×10^5	7.3	7.4
160	10.74	10.84	34.22	32.86	9.5×10^5	8.4×10^5	7.0	7.0
175	11.14	11.03	35.22	33.72	1.2×10^6	9.4×10^5	7.0	7.0
190	11.31	11.24	36.58	34.27	5.1×10^6	1.3×10^6	6.8	6.9
205	11.52	11.41	37.12	34.96	9.8×10^6	5.2×10^6	6.5	6.6
220	11.80	11.65	37.92	35.14	1.1×10^7	7.4×10^6	6.0	6.0
240	11.92	11.72	38.74	36.92	1.9×10^7	9.6×10^6	5.7	5.7

*Average of 3 replicates.

Crion, garlic and other spices were fried and mixed with the gravy. A soup with thick consistency can thus be prepared. The above soup was served to a panel of five judges. Acceptability of the soup was rated on a 9 point hedonic scale (9 = like extremely, 1 = dislike extremely, 5 = neither like nor dislike).

Table 1 shows the proximate composition of the products. The protein content of sample (1) and (2) are 26.80 and 18.20 respectively. Table 2 shows the shelf-life characteristics of the products upto 240 days. Although moisture content increased slowly with storage period, the final moisture content was below 12%. The TVBN value was less than 40 mg%, a figure often encountered in acceptable dried fish products. Total bacterial count slowly increased and in the last phase of storage the count rose to as high as 1.9×10^7 /g. Upto 240 days storage, soup prepared from the mixture was acceptable (score 5.7). Upto 175 days storage, the acceptability was quite high (score 7, like moderately). Although the total count was quite high, the powder had no putrid smell up to 240 days storage. There was no mold growth, insect infestation and discolouration. Mixture of fish and

cereal permit improvement in the nutritive value of the cereal. When facilities are not available to chill and/or market fish the bulk catch be converted into fish cereal mixture. Once fish is steamed, water content and bacterial load is reduced and autolytic enzymes inactivated. The cereal powder further reduces the moisture. Besides its use as a raw material for preparation of soup, the fish cereal mixture can also be added to other curries to improve nutrition and taste.

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